STCG TANK SUBGROUP MEETING

August 14, 1996

Welcome/Overview of Meeting Agenda (Cathy Louie)

Cathy Louie welcomed the group and gave a brief overview of the meeting agenda.

Leak Detection/Monitoring/Mitigation (Deborah Iwatate)

Deborah Iwatate (WHC) presented an overview of her work on leak detection, monitoring, and mitigation (LDMM) in support of TPA milestone M-45-08-T02 (April 1997). An Internet website devoted to this activity will be ready in a few weeks.

The TPA milestone specifies that "...criteria for determining allowable leakage volumes, and acceptable leakage monitoring, detection, and mitigation measures necessary to permit sluicing operations" be approved by the Washington State Department of Ecology. To meet this milestone, DOE and its contractors will:

- Develop the background and basis for allowable leakage criteria
- Propose appropriate measures to address LDMM
- Establish agreement with Ecology regarding the issues and recommendations.

Nineteen candidate criteria have been proposed for determining allowable leakage volumes from Hanford single-shell tanks (SSTs) during sluicing. The TPA milestone defines criteria as "standards upon which judgements or decisions can be made; any definite rule, principle, or measure". The 19 criteria are really issues or concerns. Any new ideas or perspectives on the criteria (see handout) should be sent to Deborah.

In addition to the criteria development, Deborah's team also surveyed existing and emerging technologies available to support Hanford SST waste retrieval by sluicing. Then they did a trade study to match candidate LDMM technologies with functions and requirements. Electrical resistance tomography (ERT), a tool developed by EM-50 for monitoring leakage during retrieval, is one technology being investigated.

The test facility in the 200-East Area contains a mock 50-foot diameter SST. The cone penetrometer was used to deploy the ERT technology down to 130 feet into the soil. The technology is really inexpensive, costing only $3-5K per vertical electrode string. It is not yet certain whether ERT will be a part of the Hanford Tanks Initiative (HTI).

Risk-Based, Scenario-Based Approach to Technology Development (John LaFemina and Lynn Franklin)

John LaFemina gave a brief introduction, then Lynn Franklin provided more details. Tanks Focus Area (TFA) investments are currently focused on Site baselines. Al Alm is challenging the sites to recreate their baselines because of possible future events (e.g., no repository), and to look for big cost reductions and real risk drivers. This activity seeks to determine how science and technology development can best anticipate, inform, and support 10-year cleanup goals.

The objectives of the risk-based, scenario-based approach to technology development investments are: 1) to identify the greatest uncertainties among the realistic alternative strategies, and 2) to determine which uncertainties can be resolved to support decision-making. The approach includes the following steps:

- Select "bounding scenarios" - realistic responses to system perturbations with technology development implications.
- Generate system evaluations: costs, risks, unacceptable features.
- Identify R&D opportunities to reduce uncertainties, minimize risks and costs, and respond to other concerns.
- Estimate system-level benefits of R&D investments.

Summary implications of cost/risk-based planning include:

- Life-cycle cost-driven EM cleanup would defer high-level waste beyond the 10-year time frame.
- ES&H risk-driven cleanup would lead to partial tank retrieval.
- Trade-off studies will likely lead to more sequential processing and selective retrieval.
- Perturbations to other assumptions (e.g., repository, privatization) encourage change.
- Current stakeholder/regulatory environment discourages change.

Tank Technology Needs Assessment Process for FY98/FY99 (Cathy Louie)

Cathy Louie stated that she wants to implement a technology needs assessment process this year similar to what was done last year. She summarized the various workshops and other activities that were undertaken. The TWRS Program will develop the architecture/framework for the process. An action item was recorded by the facilitator to distribute copies of the new technology needs format and instructions to be used this year by all the DOE sites. It was developed at a

national STCG meeting in June 1996. (Format and instructions sent to Tank Subgroup members via cc:Mail or fax on August 28, 1996).

Science Needs in Tank Waste Remediation (John LaFemina)

John LaFemina discussed TFA's mission as being driven by user needs (i.e., problems to be solved). The STCG translates user needs into technology needs (i.e., what tools are needed to solve the problems). Now the STCG will begin to translate technology needs into science needs (i.e., what knowledge is needed to solve the problems). John stated that we must understand the potential impacts of investments in science and assess the relative value of alternative investments. He gave numerous examples of questions scientific research might answer relative to various types of tank technology needs, including:

- retrieval and mobilization technology needs
- characterization technology needs
- pretreatment technology needs
- immobilization technology needs
- closure technology needs

He then summarized the science needs identified earlier this year by TFA in several key science areas:

- separations science
- colloidal science
- process design and control
- waste form chemistry
- conversion science
- materials synthesis
- risk and systems analysis.

Tank Subgroup Calendar

Tentative agenda items identified earlier this year are listed below.

September 11, 1996

- Assess TWRS Program relative to tank technology needs, demonstrations, and implementation

- Encourage problem-owners to bring technology needs to the Subgroup

- Briefing on technology needs identified by the Privatization Phase I contract winners

October 9, 1996

- Start reviewing last year's technology needs priorities and determining if revisions are necessary

November 13, 1996

- Continue reviewing last year's technology needs priorities and making revisions as necessary

December 11, 1996

- Prioritized tank technology needs are due to the STCG Management Council

January 1997

- Management Council sends technology needs packages to the Focus Area Teams

Action Items

1. Set up another meeting for Deborah Iwatate to brief Ecology, the Tribes, and the stakeholders on her ERT work. (Facilitator)

2. Make copies of the vugraphs presented by Deborah Iwatate, Lynn Franklin, and John LaFemina for the absent members. (Done)

3. Invite Tom Brouns to present details of TFA FY97/FY98 plans and priorities next month. (Done)

4. Invite PHMC and privatization vendor participation in the technology needs assessment process. (Cathy Louie)

5. Ask TFA representatives to be observers at the technology needs prioritization workshops. (Cathy Louie)

6. Provide any comments on the draft TFA response to the STCG technology needs to Cathy Louie by August 16. (Everyone)

7. Distribute copies of the new technology needs format to members. (Done)

8. Request presentation from DOE-RL/TWRS point-of-contact for the 10-Year Plan (Patti Morehouse). (Cathy Louie)

9. Present summary of MYPP status next month. (Ken Gasper)

10. Ask Bill Root to present an HTI update next month. (Done)

11. Distribute information on the technology needs assessment process to Subgroup members. (Facilitator)

12. Put Tom Anderson (Fluor Daniel) on the Subgroup distribution list. (Done)

13. Invite Jim Cochran (WSU-TC) to participate in the tank science and technology needs assessment process. Make him an ad-hoc member of the Subgroup. (Cathy Louie)

14. Encourage better participation by the Tribes and the HAB in Subgroup meetings. (Cathy Louie and Tom Tebb)

Meeting Attendees

John Appel (WHC/TWRS-Disposal)
Gary Ballew (ETP)
Linda Fassbender (PNNL)
Vince Fitzpatrick (MACTEC)
Lynn Franklin (PNNL)
Pete Gibbons (WHC/TWRS/TFA)
Ken Gasper (WHC/TWRS-LLW)
Marcus Glasper (DOE-RL/STP)
John Hertzel (WHC/TWRS)
Jim Homan (WHC/TWRS)
John LaFemina (PNNL/TFA)
Deborah Iwatate (WHC/TWRS)
Gene Kosiancic (WHC/TWRS)
Cathy Louie (DOE-RL/TWRS)
Al Noonan (PNNL/TFA-HTI)
Vince Panesko (WHC/Technology Integration)
Todd Peterson (Battelle-Seattle)
Loni Peurrung (PNNL)
Tom Tebb (Ecology)
Jerry White (DCR/Port of Benton)
Joan Young (WPI/BDM)

Feedback on This Meeting

How did you feel about the meeting (e.g., agenda topics, progress made, ability to express your views)? Please send suggestions for improvements or future agenda items to Linda Fassbender, and she will forward them to the Co-Chairs. Thanks.

Next Meeting

Wednesday, September 11, 1996
1:00-5:00 p.m.
ISB-1 White Bluffs Room